SEQUENCE LISTING

(1) GENERAL INFORMATION:

    (i) APPLICANT:
        (A) NAME: Akzo Nobel N.V.
        (B) STREET: Velperweg 76
        (C) CITY: Arnhem
        (E) COUNTRY: The Netherlands
        (F) POSTAL CODE (ZIP): 6824 BM
        (G) TELEPHONE: 0412 666379
        (H) TELEFAX: 0412 650592

    (ii) TITLE OF INVENTION: Coccidiosis vaccines

  (iii) NUMBER OF SEQUENCES: 41

    (iv) COMPUTER READABLE FORM:
        (A) MEDIUM TYPE: Floppy disk
        (B) COMPUTER: IBM PC compatible
        (C) OPERATING SYSTEM: PC-DOS/MS-DOS
        (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 214 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: protein

    (v) FRAGMENT TYPE: internal

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

Met Pro Phe Glu Leu Pro Pro Leu Pro Tyr Pro Met Asp Ala Leu Glu
1   5   10   15

Pro Tyr Ile Ser Lys Glu Thr Leu Glu Tyr His Tyr Gly Lys His His
        20   25   30

Ala Ala Tyr Val Asn Asn Leu Asn Arg Leu Val Glu Gly Lys Pro Glu
      35   40   45

Ala Ser Lys Ser Leu Glu Glu Ile Ile Lys Thr Ser Ser Gly Ser Val
      50   55   60

Leu Asn Asn Ala Gly Gln Ala Trp Asn His Thr Phe Tyr Trp Lys Ser
    65   70   75   80

Met Arg Pro Ala Ser Ala Gly Gly Pro Pro Gly Ala Pro Gly Gly Gly

                    85   90   95

Pro Pro Gly Ala Pro Gly Ala Pro Leu Arg Glu Glu Leu Glu Ser Ala
            100   105   110

Phe Gly Gly Val Glu Lys Phe Arg Glu Ala Phe Ala Ala Ala Ala Ala
            115   120   125

Ala His Phe Gly Ser Gly Trp Ala Trp Leu Cys Phe Cys Lys Lys Ser
        130   135   140

Arg Ser Leu Phe Leu Leu Gln Thr His Asp Gly Ala Thr Pro Phe Arg
145   150   155   160

Asp Asn Pro Asn Cys Ala Pro Leu Leu Thr Cys Asp Leu Trp Glu His
                165   170   175

Ala Tyr Tyr Ile Asp Arg Arg Asn Asp Arg Lys Ser Tyr Leu Asp Ala
                180   185   190

Trp Trp Ser Val Val Asn Trp Asp Phe Ala Asn Glu Asn Leu Lys Lys
            195   200   205

Ala Met Gln Gly Ser Asp
        210

(2) INFORMATION FOR SEQ ID NO: 2:

        (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 13 amino acids
                (B) TYPE: amino acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: protein

        (v) FRAGMENT TYPE: internal

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

Leu Gly Pro Leu Ala Leu Pro Leu Leu Ala Asp Val Arg
    1   5   10

(2) INFORMATION FOR SEQ ID NO: 3:

        (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 223 amino acids
                (B) TYPE: amino acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

Met Pro Leu Asn Leu Gly Asp Ser Phe Pro Asp Phe Gln Ala Glu Ala
1   5   10   15

10

Leu Gly Ala Glu His Phe Arg Leu His Glu Tyr Leu Gly Asp Ser Trp
        20   25   30

Gly Val Met Phe Ser His Pro Asn Asp Phe Thr Pro Val Cys Thr Thr
15   35   40   45

Glu Leu Ala Glu Ala Val Lys Leu Gln Asp Ser Phe Thr Lys Lys Asn
    50   55   60

Cys Lys Leu Val Gly Phe Ser Cys Asn Asp Leu Gln Ser His Arg Glu
20 65   70   75   80

Trp Ala Lys Asp Ile Met Ala Tyr Ala Gly Arg Ser Gly Asn Leu Pro
                85   90   95

25

Phe Pro Leu Val Cys Asp Pro Asn Arg Glu Leu Ala Ala Ser Leu Gly
            100   105   110

Ile Met Asp Pro Ala Glu Lys Asp Lys Lys Gly Leu Pro Leu Thr Cys
30   115   120   125

Arg Cys Val Phe Phe Ile Ser Pro Glu Lys Lys Leu Ala Ala Ser Ile
    130   135   140

Leu Tyr Pro Ala Thr Thr Gly Arg Asn Phe Ala Glu Ile Leu Arg Val
35 145   150   155   160

Leu Asp Ser Leu Gln Leu Thr Ala Lys Phe Pro Val Ala Thr Pro Val
                165   170   175

40

Asp Trp Thr Ala Gly Ala Lys Cys Cys Val Val Pro Asn Leu Ala Ala
            180   185   190

Glu Glu Ala Gln Arg Leu Leu Pro Lys Gly His Glu Ala Leu Gln Leu
45   195   200   205

Pro Ser Gly Lys Pro Tyr Leu Arg Leu Thr Pro Asp Pro Arg Gly
    210   215   220

50

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 15 amino acids
    (B) TYPE: amino acid
55 (C) STRANDEDNESS: single
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

```
Met Ser Pro Ser Pro Ala Gly Val Ala Glu Tyr Leu Ala Ser Leu
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO: 5:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 16 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

```
Asn His Ala Glu Phe Asp Pro Ser Gln Thr Glu Val Val Val Phe Pro
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO: 6:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 20 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

```
Val Asp Ser Phe Thr Pro Ser Val Gly Cys Val Phe Ala Gly Met Pro
1               5                   10                  15

Ala Asp Phe Arg
                20
```

(2) INFORMATION FOR SEQ ID NO: 7:

```
    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
 5      (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA (genomic)


10


   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

GTAAATTGGG ACTTCGC                                                    17
15
(2) INFORMATION FOR SEQ ID NO: 8:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
20      (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA (genomic)
25


   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
30
GTAAACTGGG ACTTCGC                                                    17

(2) INFORMATION FOR SEQ ID NO: 9:

35      (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear
40
   (ii) MOLECULE TYPE: DNA (genomic)


45
   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

GTAAATTGGG ACTTCGC                                                    17

50 (2) INFORMATION FOR SEQ ID NO: 10:

        (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
55      (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA (genomic)
```

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

GTAAACTGGG ACTTCGC   17

    (2) INFORMATION FOR SEQ ID NO: 11:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

GTTAATTGGG ACTTCGC   17

    (2) INFORMATION FOR SEQ ID NO: 12:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

GTTAACTGGG ACTTCGC   17

    (2) INFORMATION FOR SEQ ID NO: 13:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

GTTAATTGGG ACTTCGC   17

(2) INFORMATION FOR SEQ ID NO: 14:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

GTTAACTGGG ACTTCGC   17

(2) INFORMATION FOR SEQ ID NO: 15:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

GTGAATTGGG ACTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 16:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

GTGAACTGGG ACTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 17:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double

```
            (D) TOPOLOGY: linear

      (ii) MOLECULE TYPE: DNA (genomic)
```

```
      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

GTGAATTGGG ACTTTGC                                                 17

  (2) INFORMATION FOR SEQ ID NO: 18:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

      (ii) MOLECULE TYPE: DNA (genomic)
```

```
      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

GTGAACTGGG ACTTTGC                                                 17

  (2) INFORMATION FOR SEQ ID NO: 19:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

      (ii) MOLECULE TYPE: DNA (genomic)
```

```
      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

GTCAATTGGG ACTTTGC                                                 17

  (2) INFORMATION FOR SEQ ID NO: 20:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

      (ii) MOLECULE TYPE: DNA (genomic)
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

GTCAACTGGG ACTTTGC   17

5   (2) INFORMATION FOR SEQ ID NO: 21:

         (i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 17 base pairs
              (B) TYPE: nucleic acid
10   (C) STRANDEDNESS: double
              (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA (genomic)

15

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

                                                                     17
20   GTCAATTGGG ACTTTGC

     (2) INFORMATION FOR SEQ ID NO: 22:

         (i) SEQUENCE CHARACTERISTICS:
25   (A) LENGTH: 17 base pairs
              (B) TYPE: nucleic acid
              (C) STRANDEDNESS: double
              (D) TOPOLOGY: linear

30   (ii) MOLECULE TYPE: DNA (genomic)

35   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

                                                                     17
     GTCAACTGGG ACTTTGC

     (2) INFORMATION FOR SEQ ID NO: 23:
40
         (i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 17 base pairs
              (B) TYPE: nucleic acid
              (C) STRANDEDNESS: double
45   (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA (genomic)

50

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

                                                                     17
     GTAAATTGGG ATTTCGC
55
     (2) INFORMATION FOR SEQ ID NO: 24:

         (i) SEQUENCE CHARACTERISTICS:

```
                (A) LENGTH: 17 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: double
                (D) TOPOLOGY: linear

 5          (ii) MOLECULE TYPE: DNA (genomic)




10          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:
                                                                        17
        GTAAACTGGG ATTTCGC

15    (2) INFORMATION FOR SEQ ID NO: 25:

            (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 17 base pairs
                (B) TYPE: nucleic acid
20              (C) STRANDEDNESS: double
                (D) TOPOLOGY: linear

            (ii) MOLECULE TYPE: DNA (genomic)


25



            (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:
                                                                        17
30    GTAAATTGGG ATTTCGC

    (2) INFORMATION FOR SEQ ID NO: 26:

            (i) SEQUENCE CHARACTERISTICS:
35              (A) LENGTH: 17 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: double
                (D) TOPOLOGY: linear

40          (ii) MOLECULE TYPE: DNA (genomic)



45          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:
                                                                        17
        GTAAACTGGG ATTTCGC

        (2) INFORMATION FOR SEQ ID NO: 27:
50
                (i) SEQUENCE CHARACTERISTICS:
                    (A) LENGTH: 17 base pairs
                    (B) TYPE: nucleic acid
                    (C) STRANDEDNESS: double
55              (D) TOPOLOGY: linear

            (ii) MOLECULE TYPE: DNA (genomic)
```

```
        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:
5
GTTAATTGGG ATTTCGC                                              17

    (2) INFORMATION FOR SEQ ID NO: 28:

10          (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 17 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: double
                (D) TOPOLOGY: linear
15
            (ii) MOLECULE TYPE: DNA (genomic)



20
        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

GTTAACTGGG ATTTCGC                                              17

25  (2) INFORMATION FOR SEQ ID NO: 29:

            (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 17 base pairs
                (B) TYPE: nucleic acid
30              (C) STRANDEDNESS: double
                (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

35


        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

40  GTTAATTGGG ATTTCGC                                          17

    (2) INFORMATION FOR SEQ ID NO: 30:

            (i) SEQUENCE CHARACTERISTICS:
45              (A) LENGTH: 17 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: double
                (D) TOPOLOGY: linear

50      (ii) MOLECULE TYPE: DNA (genomic)



55      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:
                                                               17
    GTTAACTGGG ATTTCGC
```

(2) INFORMATION FOR SEQ ID NO: 31:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

GTGAATTGGG ATTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 32:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

GTGAACTGGG ATTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 33:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

GTGAATTGGG ATTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 34:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

GTGAACTGGG ATTTTGC   17

10

(2) INFORMATION FOR SEQ ID NO: 35:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 17 base pairs
    (B) TYPE: nucleic acid
15 (C) STRANDEDNESS: double
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

20

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

25

GTCAATTGGG ATTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 36:

30 (i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 17 base pairs
    (B) TYPE: nucleic acid
    (C) STRANDEDNESS: double
    (D) TOPOLOGY: linear

35
(ii) MOLECULE TYPE: DNA (genomic)

40
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

GTCAACTGGG ATTTTGC   17

45 (2) INFORMATION FOR SEQ ID NO: 37:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 17 base pairs
    (B) TYPE: nucleic acid
50 (C) STRANDEDNESS: double
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

GTCAATTGGG ATTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 38:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: double
            (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:

GTCAACTGGG ATTTTGC   17

(2) INFORMATION FOR SEQ ID NO: 39:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 719 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: cDNA

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

atg ccg ttc gaa ctc ccc ccg ctg ccg tac ccc atg gac gcc ctc gag   48
Met Pro Phe Glu Leu Pro Pro Leu Pro Tyr Pro Met Asp Ala Leu Glu
 1   5   10   15

ccg tac atc agc aaa gag act ctc gag tac cac tat ggg aag cac cac   96
Pro Tyr Ile Ser Lys Glu Thr Leu Glu Tyr His Tyr Gly Lys His His
                 20   25   30

gcg gct tac gtg aac aac ttg aac aga ctc gtc gag ggg aag ccg gag   144
Ala Ala Tyr Val Asn Asn Leu Asn Arg Leu Val Glu Gly Lys Pro Glu
             35   40   45

gct tcc aag agc ctg gag gaa ata ata aag acc tcc tcg ggg tcg gtg   192
Ala Ser Lys Ser Leu Glu Glu Ile Ile Lys Thr Ser Ser Gly Ser Val
         50   55   60

ctg aac aac gcg ggc cag gcg tgg aac cac acg ttc tac tgg aag tcg   240
Leu Asn Asn Ala Gly Gln Ala Trp Asn His Thr Phe Tyr Trp Lys Ser
     65   70   75   80

atg cgg ccg gcc tcg gcg ggg ggc ccc ccg ggg gcc ccc ggc ggg ggc   288
Met Arg Pro Ala Ser Ala Gly Gly Pro Pro Gly Ala Pro Gly Gly Gly
                 85   90   95

```
ccc ccg ggg gcc ccg ggg gcc ccc ctg cgg gag gag ctg gag agc gcg   336
Pro Pro Gly Ala Pro Gly Ala Pro Leu Arg Glu Glu Leu Glu Ser Ala
            100             105             110

ttc ggg ggc gtg gag aag ttc cgg gag gcc ttt gct gct gct gct gct   384
Phe Gly Gly Val Glu Lys Phe Arg Glu Ala Phe Ala Ala Ala Ala Ala
        115             120             125

gcg cac ttc ggc tcg ggc tgg gcc tgg ctc tgc ttc tgc aag aag tcc   432
Ala His Phe Gly Ser Gly Trp Ala Trp Leu Cys Phe Cys Lys Lys Ser
        130             135             140

cgc agc ctc ttt ttg ctg cag acc cac gac ggg gcc acg cct ttc aga   480
Arg Ser Leu Phe Leu Leu Gln Thr His Asp Gly Ala Thr Pro Phe Arg
145             150             155             160

gac aac ccc aac tgc gcg ccg ctg ctc acc tgc gac ctg tgg gag cac   528
Asp Asn Pro Asn Cys Ala Pro Leu Leu Thr Cys Asp Leu Trp Glu His
                165             170             175

gcc tac tac atc gac cgc aga aac gac cgc aag agc tac ctc gac gcg   576
Ala Tyr Tyr Ile Asp Arg Arg Asn Asp Arg Lys Ser Tyr Leu Asp Ala
                180             185             190

tgg tgg tct gtg gtg aat tgg gac ttc gcg aac gag aac ttg aag aag   624
Trp Trp Ser Val Val Asn Trp Asp Phe Ala Asn Glu Asn Leu Lys Lys
            195             200             205

gca atg cag gga agc gac tag gcgcgtggtg gtctgtggtg aattgggact      675
Ala Met Gln Gly Ser Asp
        210             215

tcgcgaacga gaacttgaag aaggcaatgc agggaagcga ctag                  719
```

(2) INFORMATION FOR SEQ ID NO: 40:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 265 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

```
TTCCCGGATT TTCAGGCGGA GGCGCTGGGC GCCGAGCACT TCCGCTTGCA CGAGTACTTG    60

GGGGACAGCT GGGGAGTGAT GTTCAGGTAA GATTGGCGTA AAAAAGCCCC ATTTAATCGC   120

ATTTTTAATT CTGTAGACTC TGTGTCGACT GCTGAGCACG AGGGGGGGGC CTGCTGCACG   180

GGAGAGCCTT GTCTCGCGCT CAACTCTGGG TTTCTGGCGT TGCTTGCAGC CACCCGAACG   240
```

```
    ctg gac tct ctg cag ctc act gcc aag ttt cca gtg gcc act cca gtg    528
    Leu Asp Ser Leu Gln Leu Thr Ala Lys Phe Pro Val Ala Thr Pro Val
                    165             170             175
 5

    gac tgg acc gct ggg gcc aaa tgc tgc gta gtg ccg aac ttg gca gca    576
    Asp Trp Thr Ala Gly Ala Lys Cys Cys Val Val Pro Asn Leu Ala Ala
                    180             185             190

10  gaa gag gcc caa agg ctt ttg ccc aaa ggc cac gag gcg ctg cag ctg    624
    Glu Glu Ala Gln Arg Leu Leu Pro Lys Gly His Glu Ala Leu Gln Leu
                195             200             205

    cct tcg ggg aag cct tac ctg cgg ctc acc cca gac ccc agg ggc tga    672
15  Pro Ser Gly Lys Pro Tyr Leu Arg Leu Thr Pro Asp Pro Arg Gly
            210             215             220
```